



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

Ref: 8WP-SUI

JAN 31 2017

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Marilyn Rhodes
WPX Energy
3500 One Williams Center, MD 38
Tulsa, Oklahoma 74172-0135

Re: Minor Permit Modification for Underground Injection Control Permit ND22335-10898
Pennington #1 SWD Class II Disposal Well, Mountrail County, North Dakota

Dear Ms. Rhodes:

On December 30, 2016, the U.S. Environmental Protection Agency Region 8 approved an Aquifer Exemption (AE) for a portion of the Inyan Kara Formation within a 1320-foot radius of the Pennington #1 SWD well. During its evaluation of that exemption, the EPA determined that the cumulative volume of injected fluid should be limited to ensure that injected fluids remain within the exempted portion of the aquifer.

Please find enclosed Minor Permit Modification No. 1 for EPA Permit ND22269-10081, limiting the cumulative injection fluid volume to 59,900,000 barrels. This volume is based on analytical modeling of injection into the perforated interval of 273 feet and a porosity of 22.5% and applying a 1,320-foot radius of the AE.

Also enclosed is a copy of the revised Appendix C for inclusion with, or replacement of, the Appendix C that was issued with the original permit on December 7, 2015.

If you have questions regarding the above action, please contact William Gallant of my staff at (303) 312-6455 or (800) 227-8917, extension 312-6583.

Sincerely,

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection



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MINOR PERMIT MODIFICATION No. 1
Underground Injection Control (UIC) Permit No. ND22335-10898

Pursuant to Title 40 of the Code of Federal Regulations, Section 144.41(e) and Part III.B.1 of the above referenced Class II UIC) permit, a minor modification to this permit is made. Changes made are as follows:

Original Version (November 6, 2015):

* * * * *

APPENDIX C - OPERATING REQUIREMENTS

MAXIMUM INJECTION VOLUME:

There is no limitation on the number of barrels per day (bbls/day) of water that shall be injected into this well, provided further that in no case shall injection pressure exceed that limit shown in Appendix C.

* * * * *

is hereby modified to read:

* * * * *

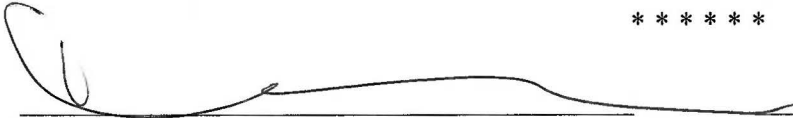
APPENDIX C - OPERATING REQUIREMENTS

MAXIMUM INJECTION VOLUME:

The cumulative injection volume into the Pennington #1SWD well shall not exceed 59,900,000 barrels. This volume is based on using the perforated interval thickness of 273 feet, a porosity of 22.5% within the injection zone and applying a radius of 1,320 feet. The maximum volume to be used above is more conservative and appropriate than using the net sand thickness calculation that is discussed in the Aquifer Exemption ROD.

In the event this cumulative volume limit is reached, the well shall be shut in and the Director shall be notified. Injection shall not be resumed until Permittee has requested, and the EPA has granted, an expansion of the exempted portion of the Inyan Kara Formation and modified the cumulative injection volume limit in this Permit.

* * * * *


Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Date

January 31, 2017

APPENDIX C

OPERATING REQUIREMENTS

MAXIMUM ALLOWABLE INJECTION PRESSURE:

Maximum Allowable Injection Pressure (MAIP) as measured at the surface shall not exceed the pressure(s) listed below.

WELL NAME	MAXIMUM ALLOWED INJECTION PRESSURE (psi) ZONE 1 (Upper)
Pennington SWD #1	1,340

INJECTION INTERVAL(S):

Injection is permitted only within the approved injection interval listed below. Injection perforations may be altered provided they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A, Paragraph 6. Specific injection perforations can be found in Appendix A.

WELL NAME: Pennington SWD #1

FORMATION NAME	APPROVED INJECTION INTERVAL (GL, ft) TOP BOTTOM	FRACTURE GRADIENT (psi/ft)
Dakota - Inyan Kara	4,779.00 - 5,200.00	0.800

ANNULUS PRESSURE:

The annulus pressure shall be maintained at zero (0) psi as measured at the wellhead. If this pressure cannot be maintained, the Permittee shall follow the procedures listed under Part II, Section C. 6. of this permit.

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